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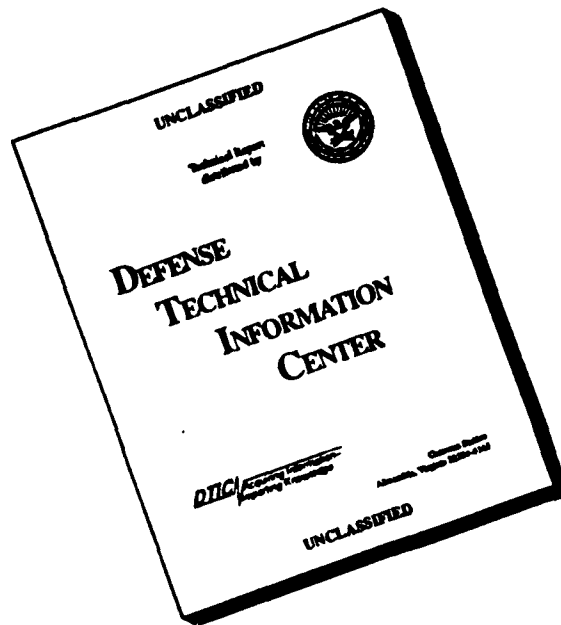
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The Adult Diabetic Patient:

An Education Challenge

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Introduction

Diabetes mellitus is a chronic and incurable disorder involving a relative or absolute lack of insulin. It is a metabolic disturbance involving decreased synthesis of carbohydrates, protein, and fat resulting in gluconeogenesis and hyperglycemia (Thompson, McFarland, Hirsch, Tucker, & Bowers, 1986).

There are a number of classifications of diabetes mellitus, the most common being insulin-dependent or type I diabetes, and non-insulin-dependent or type II diabetes mellitus.

According to the American Diabetes Association (ADA), diabetes mellitus affects more than 14 million Americans, with over 50% unaware that they have the disease. With at least one diagnosis of diabetes mellitus made every 60 seconds, almost 750,000 new cases will be diagnosed this year. The fourth leading cause of death by disease in the United States, 150,000 people will die this year because of diabetes mellitus (ADA, personal communication, March 17, 1993).

As the average age of the American population increases, these statistics develop a whole new dimension. According to Dellasega (1990), diabetes mellitus affects 14% of the elderly population with 90%

of older diabetics suffering from non-insulin-dependent diabetes mellitus (NIDDM). Approximately 50% of all diabetics are over age 55 (ADA, personal communication, March 17, 1993). As noted by Dellasega (1990), "In addition to an increased likelihood of contracting diabetes with advancing age, an elderly client who develops the disease will be challenged by a self-care regime that may be rendered more difficult by normal physiologic changes of aging" (p. 16).

Ultimately, many diabetics develop complications such as heart disease and stroke, kidney failure, peripheral neuropathies, blindness, and blood vessel damage. According to Thompson et al (1986), many of these conditions can remain or return to normal with proper management of the underlying disease. In addition to routine medical care and adherence to a prescribed regime of diet and exercise, education of the diabetic patient is an important facet of their overall treatment.

In the medical system today, not all patients requiring treatment are being hospitalized. If a patient does get admitted, hospital-based nurses are faced with sicker patients who are staying shorter periods of time. As a result, the community-based nurse

is finding that he/she, too, must care for sicker patients. To better prepare these patients for life after discharge, patient education must be initiated as soon as possible. Many times this begins the day the patient is admitted to the hospital and continues after they are discharged. For those not admitted, patient education often begins at the physicians' office.

This paper explores diabetes mellitus in relation to concepts of self-care and adult education. In addition, applications to the inpatient and outpatient setting will be addressed, and implications for advanced nursing practice will be presented.

Literature Review

Diabetes Mellitus

Diabetes mellitus is not one disease, but a syndrome or group of diseases with different etiologies that have common signs and symptoms. What is commonly referred to as "diabetes mellitus" is the "final common pathway of many diseases that affect insulin secretion or action resulting in altered metabolism, especially carbohydrate metabolism" (Guthrie & Guthrie, 1983, p. 617).

In 1979 the National Institutes of Health (NIH) defined diabetes mellitus as an altered state of carbohydrate metabolism whereby one's fasting plasma glucose level is greater than 140 mg/dl, or at least two values on a glucose tolerance test that exceed 200 mg/dl between zero time and two hours (Guthrie & Guthrie, 1983). In addition to defining diabetes mellitus, the NIH reclassified the disorder into three major groups: type I, type II, and other.

Although the disorder may occur at any age, persons with type I (insulin-dependent) diabetes mellitus are usually young and are dependent upon daily insulin injections. Without such injections, ketosis or ketoacidosis will develop and the individual will die.

The primary deficit in type I diabetes mellitus appears to be an abnormality in the immune system resulting in prereceptor abnormalities and the metabolic defects indicative of the diabetes syndrome. These abnormalities may be due to: beta cell destruction with insulin deficiency, inability of the beta cell to secrete/release insulin, an abnormal insulin molecule, or binding of insulin in the serum or excess insulin destruction before it reaches its target (Guthrie & Guthrie, 1983).

Type II (non-insulin-dependent) diabetes mellitus may be subgrouped into obese/nonobese and insulin-requiring/non-insulin-requiring. Persons with NIDDM may have receptor or postreceptor abnormalities manifested as a deficiency of insulin receptors on the target cell membranes, an abnormal receptor, antibodies to the receptor, defects in the secondary messenger within the cell, or receptors on the intracellular organelles to the second messenger. Increased caloric intake increases insulin secretion which induces decreased insulin reception, thus decreasing insulin action. As a result, carbohydrate intolerance increases (i.e., diabetes mellitus results). It has been estimated that there may be as many as 35-40 etiologies or different

diseases comprising the NIDDM syndrome. Persons with NIDDM may have decreased, normal, or increased insulin levels, and are usually middle-age and overweight at the time of diagnosis. Type II diabetics who need insulin injections require it to prevent hyperglycemia, not to sustain life as is the case with the type I diabetic (Guthrie & Guthrie, 1983). Type II diabetes mellitus affects approximately 90-95% of the 14 million Americans who have diabetes (ADA, personal communication, March 17, 1993). Diabetes mellitus in the "other" category includes many diseases which cause carbohydrate intolerance and do not fall into either the type I or type II categories (Guthrie & Guthrie, 1983).

Diabetes mellitus is a chronic disorder for which there is no known cure. Many American with the diagnosis, however, are able to live fulfilling lives, although the demographic data may seem otherwise. It is estimated that more than 14 million Americans have diabetes mellitus, about half of whom are not diagnosed (ADA, personal communication, March 17, 1993; Bransome, 1992; Collins, 1993; Karam, 1991). Helms (1992), citing a study by the ADA in 1987, states that the prevalence of diabetes was 26.8 patients/ 1000 population. It has

been estimated that 750,000 new cases are diagnosed each year (ADA, personal communication, March 17, 1993).

Regarding the estimated growth on incidence of diabetes mellitus, Helms (1992) projects that "the prevalence of diabetes will remain relatively constant at approximately 1 million patients in younger populations (less than 45 yr old) through the middle of the next century. As the post-World War II baby boom ages, the number of older diabetics (45 and older) will almost double from 6.5 million in 1987 to an estimated 11.6 million in the year 2030" (p. 6). Over the next twenty years (1990-2010) the highest growth rates are expected to be in the 45-64 year age group. After the year 2010 the growth rate of diabetes mellitus in patients age 65 and older is expected to accelerate (Helms, 1992). Bransome (1992) states that the increasing number of minorities with diabetes mellitus may cause the estimates by Helms regarding the prevalence of diabetes mellitus after the year 2000 to be underestimated. At present, Dellasega (1990) states that diabetes mellitus affects 14% of the elderly population, with 90% of older diabetics suffering from NIDDM.

The demographic characteristics and economic impact of diabetes mellitus is astounding. It is estimated that the annual cost of caring for diabetics is in excess of \$20 billion and accounts for 5% of the total health care costs in the United States (ADA, personal communication, March 17, 1993); Bransome (1992) estimates that direct costs in 1987 approximated \$9.6 billion and indirect costs exceeded \$10 billion. Combining direct and indirect health care costs, diabetes mellitus annually adds \$20.4 billion to the nation's health care bill (ADA, personal communication, March 17, 1993; Collins, 1993). Diabetes mellitus has been cited as the nation's fourth leading cause of death from disease (ADA, personal communication, March 17, 1993; Collins, 1993).

Ultimately, many diabetics develop complications such as heart disease and stroke, kidney failure, peripheral neuropathies, blindness, and blood vessel damage. Many times the diabetic first becomes aware that he/she has the disease when one of its life-threatening complications develops (ADA, personal communication, March 17, 1993). Most hospitalizations for diabetic complications are for cardiovascular disease (Bransome, 1992). It is estimated that

diabetics are 10 times more likely to have atherosclerosis (Bransome, 1992), 2-4 times more likely to have heart disease, and 2-6 times more likely to suffer a stroke than their non-diabetic counterparts (ADA, personal communication, March 17, 1993; Diabetes: Facts, 1988).

Diabetics are 22 times more likely to develop skin ulcers or gangrene and 15 times more likely to have peripheral vascular disease (Bransome, 1992). It is estimated that 45% of all nontraumatic foot and leg amputations occur to diabetics (Diabetes: Facts, 1988). A diabetic is 15 times more likely to suffer a leg amputation than a non-diabetic (ADA, personal communication, March 17, 1993).

Bransome (1992) also states that hospitalization for eye disease is "much more common" (p.3) for the diabetic; 12,000 diabetics become blind each year (ADA, personal communication, March 17, 1993), making diabetes mellitus the primary cause of new blindness in the adult population aged 25-74 (ADA, personal communication, March 17, 1993; Diabetes: Facts, 1988 Little, 1991).

Renal disease is also a major complication for the diabetic. It is estimated that 10% of the diabetic

population suffers from kidney disorders (ADA, personal communication, March 17, 1993; Diabetes: Facts, 1988) and 25% of all new dialysis patients are diabetic (Diabetes: Facts, 1988). In 1986, nearly 30,000 diabetics began initial treatment for end stage renal disease (ADA, personal communication, March 17, 1993). While Little (1991) states that diabetics are 17 times more likely to have renal disease, Bransome (1992) notes that diabetics age 45 and younger are 16 times more likely to suffer renal disease than the young, non-diabetic adult. According to Thompson et al (1986), many of these conditions or complications need not occur or can return to normal with proper management of the underlying disease.

For the future, these sobering statistics mandate that emphasis must shift to finding cost-effective ways to treat the diabetic patient and reduce complications (Helms, 1992). Education regarding the challenging self-care regime, therefore, takes on an even greater dimension of importance.

Self-Care Concepts

Innovative methods of health care delivery that are both cost-effective and efficacious will be a high priority for the 21st century. One trend in

health care delivery that one suspects will gain even greater momentum in the future is the move toward self-care and home-care management for people with chronic illnesses. (Anderson, 1990, p. 71)

Funnell et al (1991), citing J.W Hoover and R.M. Anderson, state that many diabetics are "frustrated and dissatisfied with their care and education" (p. 37); additionally, diabetes educators are frustrated with their "seeming inability to 'motivate' patients to comply" (p.37). One possible reason for this encompassing frustration may be the nursing theory or philosophy used in the treatment and education of diabetics. Two theories that have been successfully applied with diabetics include Dorothea Orem's self-care deficit theory of nursing (Allison, 1973; Backscheider, 1974; Fitzgerald, 1980) and the patient empowerment model (Funnell et al, 1991). Both models focus on the patient and his/her needs and goals. When nurses place the primary focus on the patient and his/her goals they will be less likely to impose their own educational agendas and goals on the diabetic patient (Fitzgerald, 1980). The goal for nurses should be to provide the patient with "sufficient knowledge to

make rational decisions, sufficient control and resources to implement their decisions, and sufficient experience to evaluate the effectiveness of their decisions" (Funnell et al, 1991, p. 38).

There are a variety of ways to define 'self-care.' Most simply, it is the ability one has to care for oneself. Allison (1973), citing a definition by Orem, states that self-care is "the health care actions an individual would perform for himself [sic] on a continuing basis" (p. 54). Taking the definition a step further, Anderson (1990), quoting Steiger and Lipson, defines self-care as "those actions initiated or performed by an individual, family, or community to achieve, maintain, or promote maximum health potential" (p. 72).

According to Eben, Gashti, Nation, Marriner-Tomey, and Nordmeyer (1989), Orem's self-care deficit theory of nursing is

composed of three related theories: (1) the theory of self-care (describes and explains self-care); (2) the theory of self-care deficit (describes and explains why people can be helped through nursing); and (3) the theory of nursing systems (describes and explains relationships that must be

brought about and maintained for nursing to be produced). (p. 120)

Backscheider (1974) explains the relationship between the theories as such: the therapeutic self-care demand sets the requirements for the patient's self-care agency (the capacity of the patient to engage in health-related actions for self); a deficit in the self-care agency establishes a need for a nursing agency or system; and the quantity and type of nursing actions is determined by the nature of the deficit. The basic premise of Orem's model shows that when a person's self-care capabilities are less than the therapeutic self-care demand (i.e., less than adequate), the nurse compensates for the deficit either by performing or by teaching others, such as a family member, to perform some or all of the self-care measures for the patient.

The empowerment approach to nursing care is similar to the self-care deficit theory of nursing in that the patient is viewed as an equal and active partner in the treatment program. According to Funnell et al (1991), key concepts of empowerment relevant to diabetes education include the following: emphasis on the whole person, emphasis on personal strengths,

patient selection of learning needs, setting shared or negotiated goals, and the transference of leadership and decision making from the educator to the diabetic patient. Additional key concepts include the self-generation of problems and solutions, analysis of failures as problems to be solved rather than as personal deficits, discovery and enhancement of internal reinforcement and motivation for behavior change, promotion of escalating participation and responsibility on the part of the patient, emphasis on support networks and resources, and promotion of the patient's fundamental and inherent drive toward health and wellness.

The key to implementing Orem's self-care model or the patient empowerment model is to maintain the view that the diabetic patient is capable of actively participating in his/her health care (Fitzgerald, 1980; Funnell et al, 1991). The role of nursing, according to Fitzgerald (1980), becomes one of

assisting the individual and family members to capitalize on their strengths and overcome their limitations. By involving the individual, a more realistic, achievable plan can be developed that will enable the person with a health deviation to

adjust to alterations in life style and to participate maximally in self-care. (p. 64)

With the empowerment model, Funnell et al (1991) report that much of the education program is focused on assisting the diabetic patient achieve his/her goals by using a problem-solving model of goal identification, recognizing strengths and weaknesses, developing strategies to maximize strengths and overcome or decrease weaknesses, and finally, establishing, implementing, and evaluating a plan.

With the concept of self-care there is an implicit notion that patients are willing and able to take responsibility for their care and take control of their health management (Anderson, 1990). Funnell et al (1991) recognize, however, that "patients who are unaccustomed, unwilling, or unable to take responsibility for their lives in other arenas may find it difficult to begin with their health care" (p. 40). In such an instance, the choice remains with the patient; if he/she chooses to remain a passive recipient of care, he/she is responsible for that decision and its subsequent consequences (Funnell et al, 1991).

If self-care is the desired outcome in the management of chronic illnesses such as diabetes mellitus, diabetes education must be a process designed to improve the quality of the patient's life by allowing the diabetic to take charge of his/her health through recognizing and promoting individual strengths, informed choices, and personal goals (Funnell et al, 1991). Increasing a patient's knowledge and skills is important in empowering him/her to better care for himself/herself (Gessner, 1989).

Application

Adult Educational Concepts

The nursing process is an integral aspect of teaching. The ability to accurately fit the teaching needs and capabilities of the diabetic patient with an individualized plan depends on a thorough nursing assessment, nursing diagnoses, negotiation and goal-setting, and evaluation between the patient and the nurse (Resler, 1983). One of the first items that must be assessed is the patient's readiness to learn. Resler (1983), citing Redman, states that there are two facets affecting a patient's readiness to learn. One is his/her emotional readiness or motivation. The second, composed of the patient's personal background of experiences, skills, attitudes, and learning ability, is known as experiential readiness.

The newly diagnosed diabetic patient may be grieving the loss of a familiar and comfortable lifestyle. The denial phase of the grieving process can greatly decrease the patient's motivation to learn new health practices and adopt a new way of life (Resler, 1983). Unfortunately, because of the life-threatening conditions associated with diabetes mellitus as well as the shortened length of the hospital stay in today's

health care environment, waiting until the patient is willing and motivated to learn is not a conceivable possibility. Resler (1983), in citing Pohl, states that the learner's motivation, as perceived by the learner, will be directed toward the most pressing need at the moment.

In addition to emotional readiness, experiential readiness must also be assessed. Prior educational experiences, interaction with the health care delivery system, and acquaintances with other diabetics all affect the educational process (Gessner, 1989). In addition, "economic realities must be faced early in the teaching....the patient may not always volunteer the information that the recommended foods and supplies may be beyond his reach financially...." (Resler, 1983, p.802).

Anderson (1990) found that the day-to-day management for women with diabetes mellitus was a daily struggle with both economic and emotional components. Anderson states, "the cost of caring to the individual and family seems to be overlooked, or else it is taken for granted that people ought to assume responsibility for their care regardless of what this means for their everyday lives" (p. 76).

In assessing the patient's learning ability, it is important that the patient's ability to understand and verbalize ideas as well as his/her ability to perform motor skills be observed (Resler, 1983). Anderson (1990) found that immigrant families who do not have adequate English language skills are at a special disadvantage in regards to their ability to understand and verbalize thoughts and ideas. Reading level, special senses (i.e., hearing, vision, touch, smell), mental function, and physical condition all affect a person's ability to learn. In the case of the older learner, it is important to consider the physiological and pathophysiological changes that occur as a part of the aging process (Kirk, 1989; Resler, 1983).

After completing the assessment, nursing diagnoses related to the patient's perceived educational needs should be formulated. Because many type II diabetics learn of their diagnosis when they present with one or more of the complications of diabetes (ADA, personal communication, March 17, 1993), the educator must be alert to possible nursing diagnoses other than those related to diabetes education.

While the nursing diagnoses help individualize the educational plan toward the uniqueness of the patient

(Resler, 1983), it is imperative that the patient's goals, not the nurse's goals for the patient, be given prime consideration. According to the ADA (1986),

Individual needs assessment provides the basis for the instructional program offered to each patient.... Curriculum and instructional materials should be appropriate for the specified target audience, taking into account the type and duration of diabetes and the age and learning ability of the individual.... (pp. XXXVIII-XXXIX)

In developing a teaching plan it is important to remember the three levels of teaching responsibility: content that is essential, content that is important, and that which is desirable. Resler (1983) compares these levels to the levels of perceived need which the ADA describes as the survival level, the home management level, and the lifestyle level. For the patient's survival, level one or content that is essential to maintain life must be presented to and mastered by the diabetic patient. Examples of level one instruction include the food exchange plan as well as insulin or oral hypoglycemic agent administration, if part of the patient's regime.

An aspect of teaching often overlooked when individualizing a plan for a patient is the teaching style or styles that will be utilized. Many teaching methods abound: one-on-one and group presentations, various types of reading material, films and videos, computer-assisted modules, etc. The presentation style(s) best suited to the patient should be addressed when assessing the patient's experiential readiness.

Group learning, a popular method for education presentations, can be profitable by allowing participants to interact amongst themselves (Resler, 1983). According to Armstrong (1982),

adults respond positively to learning environments in which they can interact and problem solve with others. Small groups of three to eight allow each person an opportunity to participate, allow for the groups experience to be used, and provide an environment in which each person can personalize information. (p.22)

Both Resler (1983) and Armstrong (1982) caution against too large a group whereby many benefits of group participation are nullified.

Kick (1989) states that individual teaching rather than a group presentation is better for the older

patient. When working with an older patient Dellasega (1990), citing Burgaaf and Stanley, recommends presenting small amounts of material at a slower pace, the use of written and verbal cues to remind the patient of points previously presented, and obtaining feedback at the end of each segment and prior to beginning a new session to help focus on topics that may require additional reinforcement.

Informal teaching, and aspect of one-on-one presentations, is often undervalued as an educational tool. Darby Russell, R.N., C., Certified Adult Nurse Practitioner, and Certified Diabetes Educator (personal communication, October 1992) and Resler (1983) both state that unstructured teaching such as reinforcing meal planning as the menu is completed, explaining and demonstrating skin and foot care when giving morning care, or taking the patient's insulin into his/her room and carefully explaining each step as it is drawn up can have positive effects on the educational process. A study by Funnell, Donnelly, Anderson, Johnson, and Oh (1992) found that educators considered individual skill sessions, individual counseling sessions, and individual content sessions as generally effective educational methods.

Reading material is another important aspect of patient teaching. In the study conducted by Funnell et al (1992), educators considered booklets as both generally effective and generally cost-effective educational material. Kicklighter and Stein (1992), citing numerous references, states that

printed health education materials are extensively used in client education programs and can be a cost-effective method for communicating health and nutrition messages and diet information. However, many printed materials may not communicate desired messages because of poor readability and a mismatch between the reading and comprehension skills of clients and those required for reading and understanding the materials (p. 40).

Siminerio and Frith (1993), referencing a study by Doak and Doak, note that most patient-education reading material was evaluated at approximately a 10th-grade reading level, well beyond the comprehension of half the American adult population. In a similar light, Kicklighter and Stein (1993), citing work by Nitzke, agreed that most instructional health material is written at the 9th-to-10th grade reading level; however, the reading ability of most patients is

usually at the 6th-grade level or lower. Results of a study conducted by Kicklighter and Stein (1993) suggests that "diabetic clients who are good readers, younger in age, and who have had diabetes for a longer period of time are most likely to be successful in reading and comprehending the printed diabetic diet" (p. 45).

Videotapes, slide/tapes, audio cassettes, programmed instruction, and computer-assisted instruction are additional methods used in educating patients. In the study by Funnell et al (1992), diabetes educators, in rating the effectiveness of educational materials, considered video tapes and slide/tapes as generally effective, programmed instruction as moderately effective, and audio cassettes and computer-assisted instruction as rarely effective.

While computer-assisted instruction is not considered a traditional method for patient education, Armstrong (1989) states that it

can play a vital role in assisting patients to interact with health care information, provide a multitude of self-assessment questions, and be available 24 hours a day. It has special appeal to

the young client who is comfortable with the technologies because computers are used in their formal educational programs. (pp. 602-603)

Kick (1989) states that elderly patients generally do better with audio-visual materials because they can adjust the volume to accommodate their specific hearing needs as well as rerun any part of the program as many times as necessary, given that additional time may be needed to process the information.

While there are many teaching strategies available, for an educational program to be effective it should be individually tailored to the specific needs of each patient. This involves not only assessing the patient's readiness to learn, but also his/her past experiences and preferred learning style as well as what he/she wants and needs from the educational encounter. According to the ADA (Zimmerman & Radak, 1989), diabetes education can help the patient decide what goals he/she wants to set in terms of managing the diabetes and what needs to be done to reach those goals. A well-individualized program allows the patient to improve the quality of his/her life by taking charge of his/her health through recognition and promotion of individual strengths, informed choices, and personal

goals; in effect, empowering the patient (Funnell et al, 1991).

Implementation

The first step in developing a diabetes education program is to assess the needs of the community or population to be served. According to the ADA (1986), "a successful program is the product of a flexible policy based on the needs of the community it is intended to serve" (p. XXXVI). Key questions to answer during the assessment process include: Who will benefit from the program (adults? children? both?)?, What is the mix of Type I and Type II diabetics?, How many are newly diagnosed?, Where do most of the patients live?, Is it safe for them to be outside at night (either in their neighborhood or the area near the education location?)?, Would a day or evening program be better attended (consider the location as well as the patient's age?)?, What is the socioeconomic status of the potential participants (can they afford the program if there is no third-party reimbursement?)?, What are the health beliefs of the patients?, and are there any similar programs being offered nearby? (Fuqua, 1989).

Another question that needs answering is whether the program will be offered in the inpatient or

outpatient setting, or both. Educational material appropriate for the inpatient setting, according to Martinez and Deane (1989), is level one or survival instruction for those individuals recovering from an acute illness. Wheeler and Warren-Boulton (1992) contend that "the acute care hospital is not the best setting for education and now, more often, patient education and follow-up services are being provided on an outpatient basis" (p. 36). The needs of the community should determine the appropriate setting for the diabetes education program.

Regardless of the setting, it is important that the education program adhere to quality standards. In the outpatient arena, Tobin (1992) reports that most states have at least one diabetes education program that receives reimbursement from Medicare (49 states), Medicaid (37 states), Blue Cross/Blue Shield (43 states), or private insurers (48 states). Of these programs, all "must meet quality assurance standards" and the programs are frequently asked to "demonstrate that educational services result in cost savings through data collection and analysis, pilot studies, or research projects" (p. 42).

Whether the diabetes education program adheres to the quality standards recommended by the ADA or to some other standard, it is imperative that the program provide the patient with an understanding of the disease as well as with the technical skills necessary to manage it (Lasker, 1992). If the ultimate goal is to empower patients so they can identify their personal goals based on their own level of responsibility, values, and philosophy, then relevant information should be "presented in terms of purposes, costs, and benefits of each self-care option. Aspects of the regimen, such as diet, monitoring, and medications, are presented as tools that patients can use to care for themselves" (Funnell et al, 1991, p. 39).

According to Wheeler and Warren-Boulton (1992), the ADA has developed a recognition program which is "a national system designed to evaluate whether programs meet the National Standards and associated criteria, and thus provide quality education for individuals with diabetes" (p. 37). In addition to adding credibility to the education program, recognition by the ADA may help achieve or maintain third-party reimbursement (Wheeler & Warren-Boulton, 1992). The ADA (1986) has developed a standardized approach to developing a diabetes

education program. A listing of topics to be presented to patients can be found in the appendix.

Once the program needs and content have been developed, a campaign to attract participants must be initiated (i.e., the program must be marketed). Fuqua (1989) states "all diabetes education programs are not created equal. Your job is to discover how your program can be distinguished from others in the community and then to *speak* about it and *persuade* your target audiences that it is true" (p. 211).

Public relations (PR) is an effective and almost essential marketing tool. Fuqua (1989) points out two critical rules in planning PR events. First, choose activities that will help accomplish your market objectives. Second, "milk your successes for all they are worth" (p. 213). Fuqua (1989) notes that PR activities are "excellent vehicles to increase consumer awareness of your services. When incorporated into the total marketing process, they can also become the catalyst for free media exposure, internal support, and increased staff morale" (p. 213).

Related to PR is media advertising and publicity. As health care organizations compete for revenue, methods to obtain advertising without spending excess

money is highly sought. While newspaper feature stories, radio and television talk shows, news releases, and community dateline or activity columns can be low-cost or free media sources (Fuqua, 1989), presentations with organizations such as church groups or the Rotary club should not be overlooked. The media source or sources utilized should depend on the message being sent and the audience it is intended to reach (Fuqua, 1989).

Evaluation is the last step in the process. The ADA (1986), as one of its standards, notes "the facility should review the educational program periodically.... The results of this review should be used in subsequent program planning and modification. An assessment of each patient's needs...should also be conducted at regular intervals" (p. XL). As part of the process, Fuqua (1989) advocates evaluation of the marketing program for "the diabetes program that is unmeasurable and not evaluated is not worth doing" (p. 213). Tools that can be used in the evaluation process include questionnaires, marketing audits, audits of patient records, inquiry cards, and ongoing analysis of retrieved data (Fuqua, 1989).

A diabetes education program is a necessary factor in the successful care and management of the diabetic patient. To attract patients, appropriate marketing techniques must be utilized. To keep patients from looking elsewhere, the program must be of exceptional quality and meet the individual needs of each and every patient. In addition, the program must be continually evaluated and modified to meet the changing needs of the patient population. This is the challenge for the clinical nurse specialist.

Implication

The roles of the clinical nurse specialist (CNS) are as varied and diverse as the settings and specialties in which CNSS practice. According to the American Nurses' Association (ANA, 1986), the CNS is a specialist, educator, consultant, and researcher. In reality, he/she is all of these and more. The CNS working with diabetic patients is in a unique position. He/she is able to practice in many of the roles attributed to the CNS.

Clinician/ Advanced Practitioner

The CNS, through his/her advanced education, management abilities, and expertise in the clinical setting, is equally comfortable working with patients, family members, nurses, and other members of the health care community. Because of this, the CNS is specially qualified to function as a case manager, working with the more complex patient care situations.

The diabetic patient and his/her support system present an interesting challenge to the CNS. The myriad of potential complications related to diabetes mellitus are well-documented (Bransome, 1992; Diabetes Facts, 1988; Guthrie & Guthrie, 1983; Little, 1991; Thompson et al, 1986). It is also known that with proper care

and treatment, many of these complications need not occur or can return to normal (Lasker, 1992; Thompson et al, 1986; Zimmerman & Radak, 1989).

The CNS as a case manager can coordinate the care and services between various specialties to ensure that the patient receives early preventative and ongoing medical care. The ANA (1986), defining the role of CNS, states that one aspect is to "take responsibility for coordination of care that involves other health professionals or resources, thereby providing continuity and helping the client deal effectively with the health care system" (p. 3).

If no case manager position is available, the CNS is equally capable of providing direct patient care. Sparacino and Cooper (1990), citing both Christman and Hamric, state "in addition to improving the level of care received by those patients with whom the clinical nurse specialist interacts directly, the ultimate goal...is to improve, through role modeling, the overall quality of care delivered by nurses" (p. 14).

Within the direct patient care setting Koettters (1989) identifies a number of nursing interventions routinely performed by the CNS. Among these are: total patient care, administering a complicated therapy or

treatment, providing emotional support for the patient, family, and staff, doing complex discharge planning, and providing patient education, either individually or in a small-group setting.

When the CNS is seen delivering direct patient care, an important message is sent to the staff, physicians, and administrators. The message delivered, according to Koettters (1989), is that "the CNS is a nurse first, with expertise in a particular specialty, as well as a consultant, an educator, or a researcher" (p. 110).

Educator

The CNS working with diabetic patients is in a unique position to educate not only the diabetic patient and his/her support system, but also staff members who care for diabetic patients and the community at large. In addition to teaching patients, families, and communities, the ANA (1986) notes the CNSs educational role also includes providing "information when there is a knowledge deficit and when new information is needed to resolve a health problem or improve the quality of care....[functioning] as a role model and preceptor....and [updating] nurses' knowledge in continuing education programs" (p. 3).

The advanced practice nurse "brings to the health-teaching activity knowledge of how people learn and what strategies to use and has access to a vast array of commercially and individually prepared teaching aids" (Resler, 1983, p. 799). In working with patients and their family members, the CNS, through assessing the patient's readiness to learn, his/her past experiences and preferred learning style as well as what he/she wants and needs from the educational encounter, is able to combine appropriate teaching-learning theories with clinical expertise. The end result is a program with individualized subject matter for the learner which is tailored to the setting (Sparacino & Cooper, 1990). The ADA (1986) stresses that an individualized needs assessment should be the backbone of any diabetes instructional program.

Teaching diabetics, the CNS may focus on individual or group education. For the individual patient, the CNS might evaluate the patient's learning needs during and following hospitalization, formulate a teaching plan, implement the plan or assist the staff in implementing it, and assess the effectiveness through follow-up (Priest, 1989). Working with groups, the CNS could develop, market, and manage an inpatient

and/or outpatient diabetes education program. Depending on the needs of the community, a variety of special-interest foci could be offered, such as: children and diabetes, senior diabetics, Spanish-speaking diabetics, diabetics on a limited budget, etc.

If the CNS is working with an outpatient education program, attracting and retaining clientele through marketing strategies is important and necessary. Community education projects can be such an avenue. By presenting a short program about diabetes to consumer groups and plugging the program with which the CNS is most familiar, the CNS accomplishes two things. First, he/she increases the knowledge level of the general public about diabetes mellitus and available resources. Second, and perhaps most important, the CNS acts as an "ambassador" for nursing, promoting the role of the nurse in the health care setting. Regardless of where the education program is offered or which type of program is offered, it is extremely important that the CNS insure that the teaching style as well as the instructional level and content are parallel with the experiential readiness and comprehension skills of the patients or clients.

The dimensions of the CNS involve more than just education. According to Priest (1989), "the CNS must find appropriate expression of the educator subrole and still balance the remaining roles of consultant, clinical expert, and researcher" (p. 164).

Consultant

Consulting, a concept widely accepted and used in the business world for years, is slowly making its way into nursing. In simplistic terms, Cohen (1985) states that a consultant is "anyone who gives advise or performs other services...in return for compensation....The important thing is that you [the consultant] have the necessary experience, qualifications, and skills to help with a task that an individual or company wants performed" (p. 2). A consultation project is a process in which an individual with special expertise is invited or requested to assess, plan, and suggest implementation for resolving a problem (Barron, 1989).

Sparacino and Cooper (1990), citing work by Kohnke, describe three types of consultation. The expert consultant has unique skills and is utilized to prescribe approaches or solutions for a specific problem or situation. A process consultant is

essentially a change agent, enabling the consultee to make a decision in a specific instance and in future situations. Lastly, the resource consultant gathers and provides relevant information to the consultee thus enabling him/her to make an informed decision based on the widest range of possibilities.

Each form of consultation has an identifiable set of components: the consult is initiated by the consultee, the relationship between the two is temporary, the consultant role is advisory, and the consultant is not responsible for the implementation of his/her recommendations (Nail & Singleton, 1986; Sparacino & Cooper, 1990). Citing Laureau, Sparacino and Cooper (1990) propose six steps to the consultation process: gaining entrance into the system, negotiating with the consultee, identifying the problem, developing interventions, intervening, and evaluating. The ANA (1986) defines the client or consultee as a community, agency group, family individual, or colleague.

The supportive-educative system of Orem's self-care deficit model (Ebon et al, 1989) as well as the patient empowerment model outlined by Funnell et al (1991) fit nicely with the resource consultant role described by Sparacino and Cooper (1990). As a resource

consultant to the diabetic patient, the CNS would inform the patient of relevant self-care options, presenting each in terms of the costs, benefits, and purposes. Once the patient has an understanding of his/her choices and the consequences of each, the patient can make an informed decision regarding which self-care options he/she would wish to utilize. According to Fitzgerald (1980), patients are ultimately "in control of their health and health care and are the principal decision makers in managing the chronic disease" (p. 58).

As an advanced practice clinician, the CNS may be called upon to develop a plan of care for a diabetic patient presenting with numerous complications. Such a patient would most likely require total or near total care. The CNS would therefore choose to develop a care plan applicable to the patient in the wholly compensatory or partly compensatory nursing system of Orem's model. The CNS might also be requested to assist with a patient's complex discharge planning needs. In both of these situations the CNS would be functioning in the expert consultant role (Sparacino and Cooper, 1990).

As a process consultant (Sparacino & Cooper, 1990), the CNS might be asked to develop a listing of local resources such as support groups and educational offerings for the diabetic patient. With a comprehensive listing, the CNS and staff, working with the patient, would easily be able to refer a patient, now or in the future, to a resource particularly suited to his/her needs. These patients, obviously, would require supportive-educative nursing actions. It is possible, however, that the patient might require care in a wholly or partly compensatory system. In such a case the CNS or staff could refer the patients support system or care giver to a resource suited to his/her particular needs.

As a consultant, the CNS is able to function in a very dynamic role. Depending on the needs of the consultee, the CNS might find himself/herself performing in a variety of consultative opportunities.

Researcher

Defining the role of CNS researcher, the ANA (1986) notes that the CNS contributes in his/her specialty area through "generating and refining research questions, interpreting research findings and applying them to clinical practice, educating other

nurses about research findings, collaborating in designing and conducting research, and communicating research findings through publication" (p. 4). While the research role may appear elusive and difficult, it is essential. Citing Jacox, Sparacino and Cooper (1990) note that only through research can "the scientific basis for nursing practice be expanded" (p. 33).

While the experienced CNS may have little difficulty implementing the researcher role, the novice CNS should start slowly and advance as his/her competence and confidence increases. In the clinical setting, the CNS is in an ideal position to identify nursing practice problems and formulate research questions. As noted by McGuire and Harwood (1989), "while many research questions may be generated by the CNS, assistance may be required depending on the complexity of the problem identified" (p. 176).

The novice CNS should also be able to interpret research findings and apply them to the clinical setting. In addition, there should be little difficulty noted in educating other nurses about research findings pertinent to their area of practice. By reviewing current research findings and applying appropriate solutions to the clinical setting as well as informing

other nurses of the significance of the current research, the CNS should be able to improve patient care.

The CNS working with diabetic patients should be able to conduct research in a variety of settings. The simplest may be to collaborate with manufacturers of various pieces of equipment, such as insulin pumps, to compare efficiency, reliability, patient comfort, complications related to the equipment, etc. If certain equipment is clearly superior to another, the CNS would, in the interest of improved patient care, recommend that only the superior equipment be used.

A standard of practice in diabetes education is to annually review the education program for process and outcome (ADA, 1986). In fulfilling this criterion, the CNS might be able to compare and evaluate various approaches to instruction (i.e., written, verbal, and computer-assisted or individual and small group). Results of these findings, while ultimately used to improve and modify the program, could also be communicated to other diabetes educators through professional journals.

Regardless of whether the CNS is primarily affiliated with the inpatient or outpatient setting,

numerous opportunities to fulfill the role of researcher present themselves. Using the research process, CNSSs, both expert and novice, promote scientific inquiry to improve clinical practice in their individual specialty.

Summary

By virtue of his/her clinical expertise and advanced education, the CNS often functions as a specialist, educator, consultant, and researcher. In such roles the CNS can be found interacting with patients, family members, nurses, and other members of the health care team as well as the general public.

Because of the complexity of the diabetes disease process, the CNS is in a challenging position to affect patient compliance through consultation and education. Working closely in the patient care setting, patients, families, staff members, and the general public often view the CNS as a role model. As such, the CNS is seen primarily as a nurse, with the other roles taking a back seat. In addition, his/her expertise as a clinician often necessitates the CNS work directly with other health professionals as a consultant, educator, or researcher.

Sparacino and Cooper (1990) note that the nurse educated to function as a CNS has a foundation that provides him/her with the versatility and adaptability for the CNS role as well as a multitude of other possibilities. In addition, Sparacino and Cooper also note that "it is the clinical nurse specialist who

successfully integrates advanced clinical practice, consultation, education, and research and maintains client-based practice as the primary focus, who promotes the viability and visibility of the role" (p. 37).

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Appendix

Standard

The program shall be capable of offering information on each of the following content items as needed:

- a) general facts
- b) psychological adjustment
- c) involvement of the family
- d) nutrition
- e) exercise
- f) medications
- g) relationship between nutrition, exercise, and medication
- h) monitoring
- i) hyperglycemia and hypoglycemia
- j) illness
- k) complications (prevent, treat, rehabilitate)
- l) hygiene
- m) benefits and responsibilities of care
- n) use of health care systems
- o) community resources

Review criteria

Each program content area has written and measurable behavioral objectives, a content outline, a designated

instructional method, instructional materials, and a means of evaluating the achievement of objectives.

Standard

The applicant shall specify the mechanism by which the curriculum shall be reviewed, approved, and updated.

Review criterion

The curriculum is annually reviewed and approved by the advisory committee and modified accordingly.

Source: National Standards for Diabetes Patient Education and American Diabetes Association Review Criteria, 1986, p. XXXI.